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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,635	02/25/2002	Shigenobu Nakamura	81707.0173	1804

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EXAMINER

DOUGHERTY, THOMAS M

ART UNIT PAPER NUMBER

2834

DATE MAILED: 04/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/083,635

Applicant(s)

NAKAMURA ET AL.

Examiner

Thomas M. Dougherty

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7-9 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 12 is/are rejected.
- 7) ☒ Claim(s) 10 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

The Applicants' arguments concerning the Someji et al. ('212) reference are not persuasive. Looking at Someji's figure 4 shows a laminated piezoelectric device having flexible protruded electrically conducting terminals on the side surfaces which are 5. This component is plated onto the side surfaces and is metal, therefore it is an elastic conductive material. Someji also shows glass layers (7) formed on the side surfaces and these glass layers are shown as being located at the root portions of the interhan electrodes on the side of the device opposite to the internal electrodes connection to the electrode plates (9, 10) via the protruded electrically conducting terminals. Consequently the Applicants' arguments are not persuasive.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Someji et al. (US 5,254,212). Someji et al. show (fig. 14) a laminated piezoelectric device comprising a pole-like laminate formed by alternately laminating piezoelectric layers (1, 2) and electrode layers (3,4) in the direction of height, and a pair of outer electrodes (9, 10) formed on the different side surfaces of said pole-like laminate, said two electrode layers (9, 10) neighboring each other with said piezoelectric layer

sandwiched therebetween being electrically connected at their side surfaces to the outer electrode plates (9, 10) which are different from each other; wherein flexible protruded electrically conducting terminals (5) are provided on the side surfaces of said pole-like laminate on where the outer electrodes (9, 10) are arranged, said flexible protruded electrically conducting terminals (5) extending along the side surfaces of the electrode layers (3, 4) and being capable of following the stretching and contraction of said pole-like laminate in the direction of height thereof, and the electrode layers are jointed to said outer electrode plates (9, 10) via said protruded electrically conducting terminals (5). A glass layer (7, 8) is formed (see col. 8, ll. 22-25) on the side surfaces of said pole-like laminate on where the outer electrodes (9, 10) are arranged so as to cover the side surfaces of the piezoelectric layers, and the root portions of said. Said protruded electrically conducting terminals have a thickness B of not smaller than 1 micrometer but not larger than one-half the thickness of the piezoelectric layer. Said protruded electrically conducting terminals (5) have a height of protrusion beyond the side surfaces of the pole-like laminate which is not smaller than 1/20 of the thickness of the piezoelectric layer (1, 2). See the discussion of the height dimension of the piezoelectric layers and component 5 at col. 6, ll. 59 and 60 and col. 9, ll. 12-14.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being obvious over Someji et al. (US 5,254,212). Given the invention of Someji et al. as noted above, Someji also notes use of silver for electrode materials (e.g. col. 11, ll. 44-46). He doesn't note the thickness of his outer electrodes or whether or not his outer electrode plates are formed of a conductor which contains at least silver. It would have been obvious to one having ordinary skill in the art to use silver as an electrode material for his outer electrode plates since this is already employed in his device and the additional use would thus result in no material mismatch. The thickness of the component appears to be on the order of the component 5 which is noted as being 40 micrometers. Note that the thickness of this component is a design choice based on the desired size of the overall component. Thus at this time it carries no patentable weight.

Claim 12 is rejected under 35 U.S.C. 103(a) as being obvious over Someji et al. (US 5,254,212) in view of O'Neill (US 4,011,474). Given the invention of Someji et al. as noted above, they don't note any variety of uses for his device. O'Neill notes at col. 3, ll. 13-16 a variety of uses for his piezoelectric stack device including as an injection valve. He doesn't show outer plates for his electrodes, but wires. It would have been obvious to one having ordinary skill in the art to employ the invention of Someji et al. as an injection valve since such devices have a rapid response as injection valves require, which is taught by O'Neill.

***Allowable Subject Matter***

Claims 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: No combination of Someji et al. and the prior art is obvious so as to show use of resin between his outer electrode plates and his laminate since the area has no room for such. Additionally no showing of grooves or slits is obvious or is it suggested for use in the outer plates of Someji's et al. invention.

Claims 7-9 are allowed.

The following is an examiner's statement of reasons for allowance: See most previous office action for reasons for allowance.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Direct inquiry concerning this action to Examiner Dougherty at (703) 308-1628.

*tmd*  
tmd

September 23, 2002

*Thomas M. Dougherty*  
THOMAS M. DOUGHERTY  
PATENT EXAMINER  
GROUP 1100  
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